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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jones, J. et al.
Appl. No.	:	09/471,153
Filed	:	December 23, 1999
Title	:	VEHICLE AXLE BEAM AND BRAKE ASSEMBLY
Group Art Unit	:	3613
Examiner	:	NGUYEN, X.
Docket No.	:	08200.163

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REPLY BRIEF UNDER 37 C.F.R. § 1.193

August 26, 2004

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Examiner's Answer mailed August 10, 2004, Appellant respectfully requests the Board of Patent Appeals and Interferences to consider the following additional arguments and reverse the decision of the Examiner in whole.

REMARKS

Regarding claim 1: The Examiner insists that Urban does disclose an axle beam. The Examiner cites Urban stating that "spider assembly 14 includes a stamped spider member 52 having a generally annular aperture 54 therethrough for receipt of an axle shaft or the like." (emphasis added by Examiner). Obviously, the Examiner confuses the axle beam with the axle shaft. As the Examiner itself admits, he "is at a lost of the difference between Appellant's axle beam 2 shown as a circular shaped shaft and Urban's disclosure of an axle shaft."

Clearly, the Examiner misconstrued either the present invention or the axle/brake assembly of Urban. The difference between the shaft and beam is determined not by the geometrical shape of those member but by their function. The shafts could not only have circular cross-section, but also hexagonal, square, etc. Likewise, the beam can have a number of different shapes, not only cylindrical, as illustrated in the exemplary embodiment of the present invention.

Applicant would like to note the difference between the "axle shaft" and "axle beam" is well known to one of ordinary skill in the automotive art. The Dictionary of Mechanical Engineering (1996 G.H.F. Nayler Fourth Edition) defines the word "shaft" as "a spindle revolving in bearings and carrying pulleys, gear wheels etc., for the transmission of power". In other words, the axle shaft is a rotatable part of the vehicle that transmits drive torque to the wheel, while the axle beam is non-rotatable portion of the axle assembly rigidly secured to the brake spiders at its distal ends for supporting the brake assemblies. The axle beam is provided for supporting the vehicle body through the

elastic suspension elements (e.g. springs) supported by the wheels at the distal ends thereof. Thus, the axle shaft may not be non-rotatably secured to the brake spider to support the brake assembly.

Therefore, contrary to the examiner's allegations, the above sentence of Urban does not mention the axle beam. In light of the above explanations is clear that Urban simply states (in column 5, lines 35-37) that the axle shaft that transmits torque from the final drive and differential to the drive wheels extends through the aperture 54 in the spider member 52 without even contacting the spider member 52. It is well known to one of ordinary skill in the automotive art, that the automotive drive axle assemblies do not necessarily have the axle beams, such as independent drive axles of the motor vehicles supported by independent suspensions. Thus, Urban fails to disclose the vehicle axle beam and the spider secured to the axle beam.

The Examiner further alleges that the term "non-removably secured" is not defined in the specification as only for welding. At the same time the Examiner concedes that the term "preferably" does not exclude other methods of securing two parts together besides welding.

Contrary to the Examiner's allegations, it is well known to one of ordinary skill in the art that the non-removable connections are those that cannot be readily removed without destroying or damaging at least one of the connected elements. The non-removable connections encompass elements connected by rivets, solder, adhesive bonding, welding, etc. One of ordinary skill in the art would easily distinguish the non-removable connections from the removable connections which are those that can be readily removed without destroying or damaging at least one of the connected elements.

The removable connections encompass elements connected by bolts and nuts, screws, etc.

For example, sheet elements of the vehicle body are non-removably connected to each other by welding, while the wheels are removably connected to the hub by bolting.

The Examiner further repeats his allegation that "bolting is just as "non-removably" as welding until it is necessary to remove the spider plate by using a torch to cut the weld and to remove the spider plate." As previously argued, if we follow the Examiner's line of reasoning, all the connections are removable as virtually everything can be cut or taken apart to pieces with the torch, chain saw, or using an explosive charge. Therefore, the Examiner's assumption that the brake spider 14 of Urban attached to portions of the vehicle by a plurality of suitable fasteners is non-removably secured is erroneous. Thus, Urban fails to disclose the spider non-removably secured to the axle beam.

Regarding claim 8: in addition to the above allegation, the Examiner further alleges that an discloses in column 6, lines 44-47 that the bolting and welding are used interchangeably and are considered as equivalents in terms of methods of fastening. To support his allegations, the Examiner refers to Urban's disclosure in col. 6, lines 44-47 that the upper portion 116 of the rim 90 of the spider member 52 may either bolted or welded to the cam shaft tube 36. We disagree and believe that the Examiner misunderstood the structure of Urban.

First, in the above sentence Urban disclose the manner to connect the cam shaft tube 36 is connected to the upper portion 116 of rim 90 of the spider member 52, not the axle beam to the spider member 52.

Second, Urban simply discloses that the bolt 120 may either pass through the

upper periphery of cam shaft tube 36, as is illustrated in Fig. 4, or may be welded to the upper surface of cam shaft tube 36. In other words, the portion referred to by the Examiner, merely shows how to dispose the bolt 120 to the cam shaft tube 36, not to replace the bolt connection with welding. In either way (whether the bolt 120 is welded to the cam shaft tube 36 or passes therethrough) the cam shaft tube 36 is connected to the upper portion 116 of rim 90 of the spider member 52 through the bolt 120. Un other words, Urban does not teach that the bolt is replaced with the weld.

Therefore, the Examiner's allegation that Urban disclose that the bolting and welding are used interchangeably and are considered as equivalents, is erroneous. Obviously, Urban does not imply that bolting and welding are to be considered as equivalents, as one of ordinary skill in the art would clearly understand that bolted connections are substantially less rigid than the welded connections, include more parts, and are more expensive and laborious in manufacturing and assembling.

In view of the above reasons, it is respectfully submitted that this application is in condition for allowance, and the rejection of claims of the present invention should be overruled.

Respectfully submitted:
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